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10/789,272

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EXAMINER

LEE, JOHN W

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/789,272	Applicant(s) JIN ET AL.	
	Examiner JOHN Wahnkyo LEE	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) 4-6,8,14,17,18,21,24-34,37-40,44-52 and 55 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 7, 9-13, 15-16, 19-20, 22-23, 35-36, 41-43, 53-54 and 56-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- The application was forwarded to the examiner on 26 January 2010.
- Claims 1-3, 7, 9-13, 15-16, 19-20, 22-23, 35-36, 41-43, 54 and 56-57 are pending.

Response to Amendment/Arguments

1. Applicant's amendments/arguments filed on 13 January 2010 have been fully considered.
2. Applicant's amendment overcomes the objection to claim 43. The objection will be withdrawn.
3. Applicant's arguments of rejection to 35 U.S.C. 101 with respect to claims 1-23 and 53 has been considered. Claim 53 renders moot because the claim was canceled. However, the applicant's argument regarding claims 1-3, 7, 9-13, 15-16, 19-20 and 22-23 is not persuasive. By the so called tied-to-machine test, claim 1 does not meet the requirements. First of all, there is a particular machine, which is a processor, tied to claim limitation (e). However, the next question is whether this processor imposes a meaningful limit on the scope of the claim. The answer is "no." The reason for the answer, "no," is that the processor is only used for displaying the stereo display images. In other words, the processor is involved in an insignificant post-activity solution, which is a display of the stereo image. The last question will be whether there is a particular transformation of an article in the claim. However, there is not. So, therefore, the rejection under 35 U.S.C. 101 cannot be withdrawn.

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4. Applicant's argument of rejection to 35 U.S.C. 103(a) with respect to claims 1-3, 7, 9-13, 15-16, 19-20, 22-23, 35-36, 41-43, 54 and 56-67 has been considered.

However, the arguments are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-23 and 53 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to a particular machine or apparatus, or (2) transform a particular article to a different state or thing. This is referred to as the "machine or transformation test", whereby the recitation of a particular machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility (See *Benson*, 409 U.S. at 71-72), and the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity (See *Flook*, 437 U.S. at 590"). While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform an article nor positively tie to a particular machine that

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

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accomplishes the claimed method steps, and therefore do not qualify as a statutory process. The details are explained above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 3, 7, 9-13, 15-16, 19-20, 22-23, 35-36, 41-43, 53-54 and 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woods et al. ("Image Distortion in Stereoscopic Video System") in view of Dhond et al. ("Stereo Matching in the Presence of Narrow Occluding Objects Using Dynamic Disparity Search").

Regarding claim 1, Woods discloses a method for producing a pair of stereo images customized for an individual user from an input stereoscopic image, comprising the steps of: a) obtaining customization information including a stereoscopic image fusional range for the individual user (page 2; section 1.2, "V-viewing Distance", "e- Eye Separation") and e) using a processor to produce the customized pair of stereo images for subsequent display by using the customized disparity map or the customized rendering conditions for the three-dimensional (3D) computer graphic model (page 1, section 1 and page 10, section 3.1.1). However, Woods does not disclose all the claim limitations. Instead of Woods, Dhond discloses b) obtaining a scene disparity map for the input stereoscopic image, wherein the input stereoscopic image includes at least one of a given pair of stereo images or a three-dimensional (3D) computer graphic

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model (page 721, section A, "BG and FG"); d) determining an aim disparity range for a customized pair of stereo image responsive to the stereoscopic image fusional range for the individual user and the obtained scene disparity map (page 721, section A, "[min_disp, max_disp]"); d) at least one of generating a customized disparity map responsive to the aim disparity range for the individual user or generating customized rendering conditions for a three-dimensional (3D) computer graphic model responsive to the aim disparity range for the individual user (page 721, section F, "dcomp (i, j)").

Adding the dynamic disparity search-based algorithm taught by Dhond to Woods's Stereoscopic Video System does no more to Wood's system than it would do if it were added to any other system. The function remains the same. Predictably, the dynamic disparity search-based algorithm adds greater reliability and efficiency to the Stereoscopic video detection.

Thus, one of ordinary skill in the art would have been motivated to update Wood's Stereoscopic Video System with the dynamic disparity search-based algorithm taught by Dhond, and thereby gaining, predictably, the commonly understood benefits of such adaptation, that is a reliable and efficient disparity search algorithm for the stereoscopic video detection.

Regarding claim 3, Woods further discloses comprising displaying the stereo images (page 1, section 1 and page 10, section 3.1.1).

Regarding claim 7, Woods further discloses wherein the step of determining the scene disparity map includes obtaining a scene convergence point and depth

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information being obtained from the 3D computer graphics model (Figure 7; page 8, section 2.1).

Regarding claim 9, Dhond further discloses wherein the step of generating a customized disparity map further including applying a predetermined mapping function (page 721, section A).

Regarding claim 10, Dhond further discloses wherein the predetermined mapping function being dependent on a region of interest (page 721, section A, "BG and FG").

Regarding claim 11, Dhond further discloses wherein the region of interest being dynamic (page 721, section A, "DHL").

Regarding claim 12, Woods further discloses wherein the step of determining the aim disparity map being further responsive to skill of the user within a stereoscopic viewing environment (page 2; section 1.2).

Regarding claim 13, Woods further discloses wherein the step of determining the aim disparity map being further responsive to a type of task that the user will perform in a stereoscopic viewing environment (page 2; section 1.2).

Regarding claim 15, Woods further discloses wherein the step of generating the customized disparity map being accomplished by applying a linear transformation to the scene disparity map (page 8; section 2.2).

Regarding claim 16, Woods further discloses wherein the step of generating the customized disparity map being accomplished by applying a non-linear transformation to the scene disparity map (page 8; section 2.2).

Regarding claim 19, Dhond further discloses wherein the region of interest being based upon a measurement of fixation position (Fig. 3; chapter IV-C).

Regarding claim 20, Dhond further discloses wherein the region of interest being based upon a map of probable fixations (Fig. 3; chapter IV-C).

Regarding claim 22, Woods further discloses wherein the step of generating rendering conditions for a three-dimensional (3D) computer graphic model including computing a location, an orientation, a focal distance, a magnification and a depth of field correlating to a pair of simulated cameras (Figs. 1-3; equations (1)-(14); chapters 1-1.2 and 1.3; pages 2-5).

Regarding claim 23, Woods further discloses wherein the customized rendering conditions are generated by modifying one or more of a set of correlating camera parameters including camera location, orientation, focal distance, magnification or depth of field (Figs. 1-3; equations (1)-(14); chapters 1-1.2 and 1.3; pages 2-5).

Regarding claim 35, claim 35 is analogous to claim 1. See rejection of claim 1 for further explanation.

Regarding claim 36, Woods further discloses wherein the stereoscopic image fusional range for the user being determined using at least one of a capability of the user to converge the user's eyes, a capability of the user to diverge the user's eyes, a user's phoria, a user's capability of accommodation, a user's range of fusion, and a rendering intent of the image (Figure 1(a) and 1(b); page 2, section 1.1, "(a) the viewing distance of the observer from the display" and "(c) the distance between the viewer's eyes").

Regarding claim 41, claim 41 is analogous and corresponds to claim 1. See rejection of claim 1 for further explanation.

Regarding claim 43, Woods discloses a stereoscopic display system that determines an aim disparity range associated with a individual user based on optometric data, comprising: a) means for obtaining optometric parameters for the individual user a set of accommodation planes (Figures 2 an 3, pages 2-3, section 1.2, "variables such as t, f, Wc, Ws"); b) means for generalizing the optometric parameters for the individual user for a different set of accommodation planes (Figure 2 and 3; equations (1)-(4); pages 3 and 4, section 1.3, "CCD coordinate transform"); c) means for calculating optometric parameters for the individual user for a single accommodation plane of display using generalized optometric parameters (Figure 2 and 3; equations (12)-(14); pages 3 and 4, section 1.3, "image space coordinate transform"). However, Woods does not disclose all the claim limitations. Instead of Woods, Dhond discloses d) means for obtaining a comfort level related to the individual user's fusing capability (page 721, section A, "[min_disp, max_disp]"); and f) means for determining the aim disparity range for the individual user (page 721, section F, "dcomp (i, j)").

Adding the dynamic disparity search-based algorithm taught by Dhond to Woods's Stereoscopic Video System does no more to Wood's system than it would do if it were added to any other system. The function remains the same. Predictably, the dynamic disparity search-based algorithm adds greater accuracy and efficiency to the Stereoscopic video detection.

Thus, it would have been obvious to one of ordinary skill in the art to apply the dynamic disparity search-based algorithm taught by Dhond to improve Wood's Stereoscopic Video System for predictable results of enhancing the accuracy and efficiency.

Regarding claim 53, Dhond discloses selecting a mode (chapter IV; page 720, "BG and FG disparity pools") of determining an aim disparity range for the user. Rest of the claim limitations are analogous and correspond to claim 1. See rejection of claim 1 for further explanation.

Regarding claim 54, claim 54 is analogous and corresponds to claim 35. See rejection of claim 35 for further explanation,

Regarding claim 56, claim 56 is analogous and corresponds to claim 39. See rejection of claim 39 for further explanation.

Regarding claim 57, claim 57 is analogous and corresponds to claim 40. See rejection of claim 40 for further explanation.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woods et al. ("Image Distortion in Stereoscopic Video System") in view of Dhond et al. ("Stereo Matching in the Presence of Narrow Occluding Objects Using Dynamic Disparity Search"), and further in view of Zhang (US 2003/0197779).

Regarding claim 2, Woods and Dhond disclose all the previous limitations except the one specified in claim 2. However, Zhang further discloses wherein the customization information includes at least one of a user profile or a rendering intent

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subject to a predetermined task choice or skill level (Fig. 3-307; paragraph [0034], “personalize three dimensional model of the conferee stored in a database”).

Adding the steps of using the information of the personalize three dimensional model of the conferee stored in a database disclose by Zhang to the combination of Woods and Dhond does no more to the combination than it would do if it were added to any other system. The function remains the same. Predictably, using the personalize three dimensional model of the conferee stored will add reliability and robustness to the combination.

Thus, it would have been obvious to one of ordinary skill in the art to apply using the information of the personalize three dimensional model of the conferee stored in a database disclose by Zhang to the combination of Woods and Dhond, to improve the combination for predictable results of enhancing the reliability and robustness.

Allowable Subject Matter

10. Claim 42 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN Wahnkyo LEE whose telephone number is (571)272-9554. The examiner can normally be reached on Monday - Friday (Alt.) 7:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on (571) 272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John Wahnkyo Lee/
Examiner, Art Unit 2624

/Samir A. Ahmed/
Supervisory Patent Examiner, Art Unit 2624